MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) COMPLIANCE INSPECTION

CITY OF HARRISBURG
DAUPHIN COUNTY, PENNSYLVANIA

REPORT DATE:
November 16, 2010

EVALUATION CONDUCTED:
July 22–23, 2010
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Conducted for:
U.S. Environmental Protection Agency
Office of Compliance and Enforcement
1200 Pennsylvania Avenue, NW
Washington, DC 20460

and

U.S. Environmental Protection Agency, Region 3
Water Protection Division
Office of NPDES Enforcement (3WP42)
1650 Arch Street
Philadelphia, PA 19103

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Section 1.0 Introduction

On July 22–23, 2010, the U.S. Environmental Protection Agency (EPA), Region 3, and an EPA contractor, PG Environmental, LLC (hereafter, collectively, the EPA Inspection Team) conducted an inspection of the City of Harrisburg's (hereafter, City or Permittee) Municipal Separate Storm Sewer System (MS4) Program. Discharges from the City's MS4 are regulated under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems*, no. PAG-13 (hereafter, the Permit), issued in December 2002. The City was first permitted under NPDES Permit no. PAG-133686 in March 2003, and it has been developing its MS4 Program since that time.

The City encompasses approximately 8.1 square miles (5,184 acres) of land with approximately 3.3 square miles (2,112 acres) of water area. The City is in Dauphin County, Pennsylvania, and is located along the east bank of the Susquehanna River. The total population of the City was estimated to be 48,950 people at the time of the 2000 U.S. Census.

The Permit authorizes the City to discharge stormwater runoff and certain non-stormwater discharges from the City's small MS4 to surface waters of the Commonwealth of Pennsylvania. Part A of the Permit, *Stormwater Management Program*, requires the City, within the permit term, to implement a stormwater management program approved by the Commonwealth of Pennsylvania, Department of Environmental Protection (DEP). DEP developed the *MS4 Stormwater Management Program Protocol* (hereafter, the Protocol), which describes an approved stormwater management program that includes best management practices (BMPs), a compliance schedule, and measureable goals to comply with the six Minimum Control Measures (MCMs) specified in Part A of the Permit. To the extent that a Permit applicant adopts all or a portion of the Protocol, it becomes a part of the applicant's Authorization to Discharge and the requirements associated with the applicant's coverage under the Permit.

In the City's permit application document, a Notice of Intent (NOI) signed March 3, 2003 (see Appendix B, Exhibit 1), the City indicated that it would adopt the entire Protocol as its Stormwater Management Program (SWMP). The City's MS4 Annual Reports for 2007–2008 and 2008–2009 note that the City has implemented the Protocol in its entirety.

The inspection focused specifically on three of the MCMs described in Part A of the Permit. Therefore, the inspection was not intended to be an evaluation of all components and requirements associated with the entire MS4 program. The EPA Inspection Team evaluated the following program components:

MCM 3	Illicit Discharge Detection and Elimination
MCM 5	Post-Construction Stormwater Management in New Development and Redevelopment
MCM 6	Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance

The purpose of the inspection was to obtain information that will assist EPA in assessing the City's compliance with the requirements of the Permit and associated Protocol, as well as the implementation status of the City's current MS4 Program. The inspection schedule is presented in Appendix A, and copies of the Permit and Protocol are included in Appendix D and Appendix E, respectively.

The EPA Inspection Team obtained this report's information through a series of interviews with representatives from the Department of Public Works and the City's Consultant Engineer, along with a series of site visits, record reviews, and field verification activities. The primary representatives involved in the inspection were the following:

City of Harrisburg Government Center: July 22–23, 2010	
Department of Public Works	Ernest Hoch, Director Karl Schill, Representative of the City Engineer Randy Schaffer, Industrial Pretreatment Coordinator
Skelly and Loy, Inc. – Consultant Engineer	Mike Lower, Environmental Engineer, City Consultant Engineer
EPA Representatives	Chuck Schadel, EPA Region 3 Allison Graham, EPA Region 3 Rebecca Crane, EPA Region 3
EPA Contractors	Max Kuker, PG Environmental, LLC Luz Slauter, PG Environmental, LLC Bobby Jacobsen, PG Environmental, LLC

Primarily dry weather conditions were experienced throughout the inspection activities. A trace amount of precipitation was experienced in the City on July 22, 2010. Weather history reports[1] indicate that approximately 0.61 inch of precipitation fell in the City during the week that preceded the inspection.

[1] Weather history reports for the City [Harrisburg, Pennsylvania] were obtained from the National Weather Service Web site (http://www.weather.gov/climate/index.php?wfo=ctp).

Section 2.0 Information Obtained Regarding Compliance with the Permit and Protocol

The EPA Inspection Team conducted an evaluation of the City's MS4 Program to obtain information that will assist EPA in assessing the City's compliance with the requirements of the Permit and associated Protocol, which DEP issued in December 2002. The Permit expired March 9, 2008, but DEP has administratively extended it until March 9, 2011.

During the evaluation, the EPA Inspection Team obtained documentation and other supporting evidence regarding compliance with the Permit and Protocol. Pertinent information obtained during the evaluation is presented in this inspection report as inspection observations. The presentation of inspection observations in this report does not constitute a formal compliance determination or notice of violation. All referenced documentation used as supporting evidence is provided in Appendix B, and photo documentation is provided in Appendix C.

Section 2.1 Illicit Discharge Detection and Elimination

Part A of the Permit requires the City to implement and enforce a program to detect and eliminate illicit discharges into the MS4.

The following are the summary components of the Illicit Discharge Detection and Elimination MCM (IDD&E MCM) from the Protocol:

- Develop map of municipal separate storm sewer system outfalls and receiving surface waterbodies;
- Prohibit illicit discharges via DEP-approved ordinance;
- Implement an IDD&E Program that includes 1) field screening program and procedures and 2) elimination of illicit discharges;
- Conduct public awareness and reporting program (see also the Public Education and Outreach portion of this manual).

2.1.1. The City's map does not present information required by the Protocol. The Protocol for the IDD&E MCM requires the Permittee to "devise an internal coding system for your [the City's] outfalls that you [the City] can use on your [the City's] system map." The City has a GIS-based map of its storm drain system; however, the City has not included an internal coding system and assigned individual identifiers to the MS4 outfalls.

The City's GIS-based map was created by a consultant during the late 1990s and revised in 2000 based on information from existing schematics of the combined sewers and separate storm sewers, as well as aerial images. City staff stated that ground truthing exercises were conducted to verify the accuracy of the map and that City staff has a high level of confidence in the map's accuracy.

As explained by City staff, the City's GIS-based mapping system has separate layers for the combined and separate sewer systems because approximately 90 percent of the system is combined and about 10 percent is separate. City staff stated that the catch basin inlets are not marked to identify whether the inlets are connected to the combined sewer system or to the separate system. Furthermore, the sections of the separate storm system which discharge to the combined sewer system are not marked for field identification. Discussions with several City staff members indicated that the City staff does not have a thorough working knowledge of which catch basin inlets are connected to which system. In addition, the inlets included on the GIS-based map are not identified as publicly owned or privately owned, and the map does not always delineate the ultimate location of discharge (e.g., combined sewer, separate storm sewer, or direct discharge to a waterbody).

The City's 2005–2006 MS4 Annual Report states that there were 23 identified outfalls from the MS4, but the 2007–2008 and 2008–2009 Annual Reports indicate that there were only 12 outfalls (see Appendix B, Exhibit 2). Based on a visual count of outfalls displayed on the City's GIS-based map, there are 23 identified outfalls from the MS4. The EPA Inspection Team visited several outfalls during the inspection; however, the outfalls were not readily accessible or visible, mainly because of vegetation overgrowth.

The following is a summary of the outfalls visited during the inspection:

Outfall Observation Location #1: The EPA Inspection Team and City staff attempted to locate an MS4 outfall at Paxton Creek, near the southwest corner of the Consolidated Scrap Resources industrial facility located along Paxton Creek at 1616 North Cameron Street, Harrisburg, PA 17103. The outfall was displayed on the City's GIS-based map of the storm system. Because of a chain-link fence and overgrown vegetation, the outfall was inaccessible (see Appendix C, Photographs 1 and 2).

It should be noted that the location from which the EPA Inspection Team attempted to gain access to this outfall was located on private property; the outfall might have been accessible from the adjacent Paxton Creek. Observation of the Consolidated Scrap Resources facility can be viewed in Attachment – 1 (Attachment -1 contains Photographs 3 &4) .

Outfall Observation Location #2: The EPA Inspection Team and City staff observed two MS4 outfalls along Paxton Creek across from the Turbine Airfoil Designs, Inc. industrial facility located along Paxton Creek at 1400 North Cameron Street, Harrisburg, PA 17103. The outfalls were displayed on the City's GIS-based system map. The outfalls were not easily accessible and were observed after searching through the vegetation along the creek bank. A small volume of flow was observed from the outfall on the south side of the adjacent bridge (see Appendix C, Photographs 5 and 6).

The EPA Inspection Team observed rainfall the night before the field activity; however, National Weather Service reports did not indicate that any measurable rainfall amounts were experienced in the City on July 22, 2010. A combined sewer overflow (CSO) outfall was also observed at this location (see Appendix C, Photograph 7). The CSO had a label indicating that it was CSO 023 from the combined sewer system (see Appendix C, Photograph 8); however, the MS4 outfalls were not labeled.

Outfall Observation Location #3: The EPA Inspection Team and City staff attempted to locate two storm sewer outfalls to Paxton Creek at the west end of Cumberland Street, which were displayed on the City's GIS-based map (see Appendix B, Exhibit 3). The outfalls were not easily accessible and were overgrown with vegetation (see Appendix C, Photograph 9). Only one of the two outfalls was observed after searching through the vegetation along the creek bank (see Appendix C, Photograph 10). Whether the other outfall did not exist or was just inaccessible at the time of the inspection could not be determined by the EPA Inspection Team.

Outfall Observation Location #4: The EPA Inspection Team observed a storm drain outfall to Paxton Creek from an inlet at a private parking lot along the west side of Paxton Creek, between Cumberland Street and Herr Street (see Appendix C, Photographs 11 and 12). The storm drain inlet was displayed on the City's GIS-based map, but the outfall to Paxton Creek was not shown. City staff explained that both the storm drain inlet in the parking lot and the outfall to Paxton Creek are privately owned; however, ownership was not indicated on the City's system map (see Appendix B, Exhibit 3).

2.1.2. The City had not identified areas within the City that are high-risk for dumping to the separate storm sewer system inlets and illegal connections to the system. The Protocol for the IDD&E MCM requires that the Permittee "have a list of priority areas in the system for efforts to trace the sources and eliminate illicit and illegal discharges and a procedure for program evaluation and assessment." The Protocol for the IDD&E MCM further requires that "beginning in Year 2 [of the Permit], each year identify the highest priority areas for 25 percent of the system until the entire system is prioritized by the end of the permit term."

The EPA Inspection Team formally requested a "Priority list of risk areas in the storm drain system (March 10, 2009 to current)" (see Appendix B, Exhibit 4, Item No. 21). The City, however, did not provide these records, explaining that the MS4 drainage areas have not assessed as of the date of the inspection.

2.1.3. The City had not conducted dry-weather field screening or inspections of its MS4 outfalls. As described above, the Protocol for the IDD&E MCM requires the City to establish priority areas that are at high risk for dumping and illegal connections to the MS4. As outlined in the Protocol, "every outfall in the Priority Areas must be screened two times a year as each priority area is screened."

The EPA Inspection Team formally requested "Records of Priority List outfall inspections/dry weather field screening and monitoring (March 10, 2009 to current)" (see Appendix B, Exhibit 4, Item No. 23), but the City did not provide records for the specified time frame. According to City staff, the City has not conducted dry-weather field screenings of any of MS4 outfalls at the time of inspection.

After the inspection, the EPA Inspection Team conducted a review of the City's MS4 Annual Reports from 2005–2006, 2007–2008, and 2008–2009. The review revealed that the City had reported that three to five outfalls were screened during the 2005–2006 reporting period, four outfalls were screened during the 2007–2008 reporting period, and four *inlets* were screened during the 2008–2009 reporting period (see Appendix B, Exhibit 2).

2.1.4. The City had not developed a centralized mechanism for public reporting and tracking of illicit connections/illicit discharges (IC/IDs). The EPA Inspection Team formally requested an "Inventory – reported incidents of illicit discharges/connections/ spills and resolution (March 10, 2009 to current)" (see Appendix B, Exhibit 4, Item No. 24); however, the City was not able to provide information on all of the illicit connections to the MS4 that had been identified and corrected as a result of the Paxton Creek Watershed Act 167 Plan Study in 2002 (see Appendix B, Exhibit 5). City staff explained that the City did not have an inventory of "reported incidents of illicit discharges/connections/ spills and resolution" and has not maintained a centralized location for documenting public complaints or the City's response.

Currently, the City has not yet developed a specific hotline, phone number, or website established for reporting IC/IDs. As described by City staff, a citizen would have to call the Department of Public Works or 9-1-1 to make a complaint. The city has not developed written standard operating procedures for receiving, documenting, and responding to citizen complaints. The City's Director of Public Works indicated that he plans to implement an electronic, Internet-based reporting system for documenting citizen complaints and the City's corrective action/response.

The City has not conducted a thorough data collection effort with regard to the occurrence of IC/IDs, including the establishment of a dedicated public reporting mechanism and centralized inventory of complaints and their resolution.

Section 2.2 Post-Construction Stormwater Management in New Development and Redevelopment

Part A of the Permit requires the City to implement and enforce a program to reduce pollution in any stormwater runoff to the MS4 from new development and redevelopment projects that result in a land disturbance of greater than or equal to one acre, including projects of less than one acre that are part of a larger common plan of development or sale that equals one acre or more.

The following are the summary components of the Post-Construction Stormwater Management MCM (Post-Construction MCM) from the Protocol:

- Enact, implement and enforce a stormwater control ordinance using DEP model language;
- Coordinate the review and approval of post-construction BMPs simultaneously with the review and approval for construction Erosion and Sediment Control Plans as described in the Construction Minimum Control Measure; and
- Ensure long-term operation and maintenance of the BMPs.

2.2.1. Post-construction site visits. On July 23, 2010, the EPA Inspection Team conducted site visits at several publicly owned facilities within the jurisdictional boundaries of the City. Summary observations pertaining to the structural stormwater controls observed at the sites are presented below. All referenced photographs are contained in Appendix C, Photograph Log.

Public Site: Water Treatment Facility – 100 Pine Drive, Harrisburg, PA 17104
The City's Water Treatment Facility, which is officially named the Dr. Robert E. Young Water Services Center, houses primarily the City's drinking water and distribution operations. The facility was built in 1994 and consists of several buildings and open-air tanks. The EPA Inspection Team observed the following with regard to post-construction stormwater controls at the facility:

- A detention basin was installed in the northwest corner of the facility. Stormwater at the facility drains primarily to the detention basin, which discharges to the Asylum Run waterway to the northwest. The detention basin was not easily accessible, and the vegetation in and around it was significantly overgrown (see Appendix C, Photographs 13, 14 and 15). This was the only post-construction control BMP that the City staff was aware of during the interview portion of the inspection, although the BMP was not identified on the City's GIS-based map of the MS4.

Ownership Unclear: Northeast Corner of the Intersection of Pine Drive and Stanley Road at the Entrance to the City's Water Treatment Facility, Harrisburg, PA 17104
The following was observed with regard to post-construction stormwater controls at this location:

- The EPA Inspection Team observed a grassy swale adjacent to the east side of the entrance road to the Water Treatment Facility in the northeast corner of the intersection of Pine Drive and Stanley Road (see Appendix C, Photographs 16 and 17). The grassy swale appeared to have been recently mowed. The City staff was not aware of the ownership (i.e., public or private) or maintenance responsibilities associated with this post-construction BMP; the BMP was not identified on the City's GIS-based map of the MS4.

Public Site: Public Works Facility – 1690 South 19th Street, Harrisburg, PA 17109
The Public Works Facility houses primarily equipment and offices for the City's Department of Public Works' Bureau of Neighborhood Services. The facility is adjacent to the City's landfill and incinerator and includes areas for vehicle storage and maintenance, as well as various other activities. The EPA Inspection Team observed the following with regard to post-construction stormwater controls at the facility:

- An underground hydrodynamic separator stormwater control is located in the southwest portion of the facility (see Appendix C, Photograph 18). The unit is officially called a "Terre Kleen Inclined Plate Hydrodynamic Separator" and is manufactured by Terre Hill Stormwater Systems. The BMP removes mainly grease, hydrocarbons, floatables, and sediment from stormwater runoff. The City staff was not certain when the unit was last inspected or maintained, nor did the staff have an established frequency or written standard operating procedures for inspecting or maintaining the unit.

It should be noted that the following general maintenance guidelines are provided by Terre Hill Stormwater Systems, the manufacturer of the Terre Kleen Inclined Plate Hydrodynamic Separator BMP[2]:

> Inspection and maintenance must be performed on a regular basis. All captured pollutants must be removed from the Terre Kleen™. During the first year after installation, inspections should be performed every three (3) months to determine the type and amount of pollutants in the Terre Kleen™. Site and weather conditions will influence the rate of pollutant capture. A schedule of regular maintenance can then be established based upon the quarterly inspections.

2.2.2. The City had not maintained an inventory of post-construction BMPs located within the City's jurisdiction. The EPA Inspection Team formally requested an "Inventory of post-construction BMPs with location (differentiating municipally-owned from privately-owned)" (see Appendix B, Exhibit 4, Item No. 17), but the City could not provide the requested records. At the time of the inspection, the City had not developed a list of post-construction BMPs located within the City's jurisdiction.

During the interview portion of the inspection, City staff members stated that they were aware of only one post-construction BMP implemented within the jurisdictional boundaries of the City—the detention basin at the Water Treatment Facility—and said they did not maintain a formal list of post-construction BMPs. The EPA Inspection Team observed the detention basin at the Water Treatment Facility and also noted the existence of two additional post-construction BMPs within the City limits (see Section 2.2.1, Post-Construction Site Visits, for additional details). It should be noted that the EPA Inspection Team did not conduct a targeted search to identify post-construction BMPs within the City during the inspection; there might be additional post-construction BMPs implemented within the jurisdictional boundaries of the City.

[2] Information obtained from Terre Hill Stormwater Systems website, http://www.terrestorm.com.

2.2.3. The City had not defined procedures for post-construction BMP plan review and approval. The Protocol for the Post-Construction MCM requires the Permittee to "enact, implement, and enforce a stormwater control ordinance using DEP model language." Therefore, through City Bill No. 22-2006, the City adopted the *Spring Creek and Paxton Creek Watershed Act 167 Stormwater Management Plan* (hereafter, Stormwater Ordinance; see Appendix B, Exhibit 6). As required by *Article IV – Drainage Plan Requirements*, Section 9-917(a) of the Stormwater Ordinance, "the final approval of subdivision and/or land development plans,[3] the issuance of any building or occupancy permit, or the commencement of any land disturbance activity may not proceed until the Property Owner or Developer or his/her agent has received written approval of a Drainage Plan from the City." Specifically, as required by Section 9-918 of the Stormwater Ordinance, the drainage plan must include a "general description of permanent stormwater management techniques [i.e., post-construction BMPs], including: construction specifications of the materials to be used for stormwater management facilities, how each permanent stormwater BMP will be operated and maintained, and the identity of the person(s) responsible for operations and maintenance."

The Protocol for the Post-Construction MCM states that to enact the applicable section of the Stormwater Ordinance, the City should "rely on DEP review of permits *where applicable (e.g., individual permit issued)*; where no DEP review of post-construction controls is conducted, use municipal resources, or establish an agreement with the local CCD [County Conservation District] or other service provider (e.g., municipal engineer), for coordination of post-construction BMP approvals."

The City did not have documentation to demonstrate that plan reviews and approval had been conducted for post-construction BMPs for projects within the jurisdictional boundaries of the City. As explained by City staff, the primary City staff position that is responsible for conducting plan reviews is the City Engineer; however, at the time of the inspection, the City Engineer position was vacant. Accordingly, the City had retained a consultant to function as the City Engineer and conduct plan reviews until the vacant position could be filled. The City did not have a formal or informal procedure to ensure that drainage plans for all applicable projects were provided to the City's Consultant Engineer for review with regard to post-construction BMPs. Furthermore, the City's Consultant Engineer explained that the City did not have a defined process for conducting post-construction BMP plan review and approval. The City's Consultant Engineer stated that his consulting firm had been retained in this capacity since January 2010, but no projects in the City have required a plan review and approval. Neither the City's staff nor its Consultant Engineer had a formal written checklist or a defined process to document the plan review process.

[3] According to City staff, the jurisdictional area of the City is essentially built-out. Consequently, the predominant form of construction is the redevelopment of existing sites. *Article II – Definitions*, Section 9-905 of the Stormwater Ordinance, specifically states that 'redevelopment' is included in the definition for 'development.' Therefore, redevelopment projects are subject to the post-construction requirements outlined in the City's Stormwater Ordinance for new development projects.

Furthermore, as explained by City staff, the City had not established an agreement with the Dauphin County CCD to conduct post-construction control plan review or approval. It should be noted that although the City relies on the CCD to implement the construction oversight program to satisfy the requirements of the Construction Stormwater Runoff Management MCM outlined in the Protocol, no formal agreement has been established to outline responsibilities and the details of the organizational working relationship.

The City provided additional information to be added to the observations obtained during the inspection /

2.2.4. The City had not established maintenance responsibilities for post-construction BMPs. As described in Section 2.2.3, the City has adopted its DEP-approved Stormwater Ordinance as required by the Protocol for the Post-Construction MCM; however, the City has not established maintenance responsibilities for post-construction BMPs as specified in its Stormwater Ordinance. As required by *Article IV – Drainage Plan Requirements*, Section 9-918 of the Stormwater Ordinance, the drainage plan must include a "general description of permanent stormwater management techniques [i.e., post-construction BMPs], including . . . how each permanent stormwater BMP will be operated and maintained, and the identity of the person(s) responsible for operations and maintenance." Furthermore, *Article VIII – Maintenance Responsibilities*, Section 9-934 of the Stormwater Ordinance, requires that City-approved drainage plans "establish responsibilities for the continuing operating and maintenance of all proposed stormwater control facilities."

The City and its Consultant Engineer were unaware of these requirements set forth in the Stormwater Ordinance and had not established maintenance responsibilities for post-construction BMPs. As described above, the City did not maintain an inventory of post-construction BMPs and City staff members were not knowledgeable of the location and maintenance responsibilities for post-construction BMPs within the jurisdictional boundaries of the City. For example, at the time of the inspection, the grassy swale that was observed adjacent to the entrance to the Water Treatment Facility appeared to have been recently mowed (see Appendix C, Photographs 16 and 17); however, the City staff was unaware of who owned the BMP and who was responsible for its operation and maintenance. During the inspection, the EPA Inspection Team also observed two City-owned post-construction BMPs that had not been adequately maintained (see Section 2.2.1, Post-Construction Site Visits, for additional details). In addition, the City staff was unaware of any activities performed by the CCD with regard to satisfying the requirements of the Post-Construction MCM for operation and maintenance of post-construction BMPs within the jurisdictional area of the City.

2.2.5. The City had not conducted maintenance inspections for its post-construction BMPs. The Protocol for the Post-Construction MCM states that "some of the structural BMPs will require maintenance over time to be effective. You [the City] must have a system to monitor these BMPs."

The Protocol for the Municipal Operations and Maintenance MCM further states that "all municipally-owned facilities [such as detention and retention basins and other BMPs] will be inspected at least annually during the remainder of the permit term (years 3, 4, and 5) to ensure they are meeting design criteria and are properly maintained and functional. By the end of year 2, you [the City] must have a detailed schedule for inspecting all stormwater facilities [municipally-owned and privately-owned], and for their operation and maintenance."

In addition, *Article VIII – Maintenance Responsibilities,* Section 9-937 of the City's Stormwater Ordinance, outlines specific requirements for inspection of post-construction BMPs (see Appendix B, Exhibit 6). For example, the Stormwater Ordinance requires that basins be inspected annually by the appropriate responsible party for the first five years and that a report be submitted to the City "regarding the condition of the facility and recommending necessary repairs."

The EPA Inspection Team formally requested "Records of post-construction BMP and catch basin inspection and maintenance (March 10, 2009 to current)" (see Appendix B, Exhibit 4, Item No. 29), but the City could not provide the requested records. The City staff and its Consultant Engineer stated that inspections have not been conducted for City-owned post-construction BMPs. The City staff was unaware of whether any inspections of privately owned post-construction BMPs have been conducted.

Section 2.3 Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance

Part A of the Permit requires the City to implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. The City is to include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, new construction and land disturbances, and stormwater system maintenance.

The following are the summary components of the Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance MCM (Municipal Operations and Maintenance) from the Protocol:

- Comprehensive Pollution Prevention Program for municipal operations, focusing particularly on vehicle maintenance, fueling and washing, maintenance of stormwater facilities and employee training.
- O&M Program training program for municipal employees.

2.3.1. Municipal operations and maintenance site visits. On July 23, 2010, the EPA Inspection Team conducted several site visits at municipally(City)-owned maintenance facilities. The purpose of the site visits was to assess the overall implementation of the City's Pollution Prevention Program for municipal operations.

Summary observations pertaining to select sites are presented below. All referenced photographs are contained in Appendix C, Photograph Log.

Public Works Facility – 1690 South 19th Street, Harrisburg, PA 17104

As described in Section 2.2.1, the Public Works Facility primarily houses equipment and offices for the City's Department of Public Works' Bureau of Neighborhood Services. According to the City's website, the Bureau of Neighborhood Services is responsible for various activities, including, but not limited to, the following: demolition of unsafe structures, pothole and sinkhole repair, refuse and recycling collection, sanitary sewer cleaning and repair, snowplowing and street salting, storm inlet cleaning and repair, and street cleaning. The Public Works facility is adjacent to the landfill and incinerator facilities and is used for various activities, including vehicle and equipment maintenance, storage, fueling, and washing. The Public Works Facility is located about 1,100 feet east of Spring Creek and about 2,000 feet northeast of the Susquehanna River. The EPA Inspection Team observed the following with regard to pollution prevention and good housekeeping at the facility:

- Numerous stains and evidence of previous spills were observed on the impervious ground surface adjacent to the trench drain in the truck storage building (see Appendix C, Photographs 19 and 20). The City staff was uncertain whether the trench drain discharges to the combined sewer, the MS4, or a holding tank.
- The City conducts vehicle painting in an area located above a trench drain in the auto body shop (see Appendix C, Photograph 21). The City staff was uncertain whether the trench drain discharges to the combined sewer, the MS4, or a holding tank.
- A Terre Kleen Hydrodynamic Separator BMP was installed near the southwest corner of the Public Works Facility (see Appendix C, Photograph 18). The BMP is designed to remove hydrocarbons, grease, and sediment from stormwater runoff. The unit discharges to a vegetated area to the southwest. City staff did not know when the BMP had been installed or how frequently it was maintained. At the time of the inspection, the outfall pipe was approximately 75 percent filled with sediment. The City did not have documentation regarding maintenance for the Terre Kleen unit. Furthermore, City staff did not know which areas of the facility drain to the Terre Kleen unit. See section 2.2.1, Public Works Facility Post-Construction Site Visit, for additional details.
- A street sweeper washing area was located outside, adjacent to a drain inlet near the southeast corner of the street maintenance building (see Appendix C, Photographs 22 and 23). The City staff explained that street sweepers are cleaned with water in this location at the end of each workday. Unstabilized sediment and debris were observed adjacent to the drain inlet (see Appendix C, Photograph 24), and sediment was observed within the drain inlet itself (see Appendix C, Photograph 25). City staff members were not certain of the ultimate discharge location of this drain (i.e., the combined sewer, the MS4, or a holding tank), and the drain inlet was not shown on the City's map of the facility. The staff members stated that they believe the drain discharges to the Terre Kleen unit and subsequently offsite to the southwest direction (i.e., to the MS4).

- Vehicle washing with water and detergent was conducted adjacent to a trench drain inside the street maintenance building (see Appendix C, Photograph 26). The City staff stated that about 15 vehicles had been washed in that location in the southern portion of the building within the two days prior to the inspection. Standing water was observed in the trench drain and on the surrounding floor surface, which indicated that the trench drain might not be functioning properly (see Appendix C, Photograph 27). In addition, sediment and oily residue were observed on the ground surface near additional trench drains in the building (see Appendix C, Photograph 28). Furthermore, a 55-gallon drum of degreaser was stored without secondary containment in an area upgradient of the trench drain in the northern portion of the building (see Appendix C, Photographs 29 and 30). City staff members were uncertain whether the trench drains discharge to the combined sewer, the MS4, or a holding tank.
- Several 55-gallon drums and other vessels containing waste material and liquid were observed without cover or containment in an outside area adjacent to a drain inlet on the northwest side of the street maintenance building (see Appendix C, Photographs 31 through 37). City staff members were not certain whether the drain discharges to the combined sewer, the MS4, or a holding tank; however, they stated that they believe the drain discharges to the Terre Kleen unit and subsequently offsite to the southwest direction (i.e., to the MS4).
- Street sweeper tailings and other debris were stored outside without cover or containment in an area upgradient of a drain inlet near the southwest corner of the street maintenance building (see Appendix C, Photographs 38 through 41). City staff members were as not certain whether the drain discharges to the combined sewer, the MS4, or a holding tank; however, they stated that they believe the drain discharges to the Terre Kleen unit and subsequently offsite to the southwest direction (i.e., to the MS4).
- Numerous stains and evidence of previous spills were observed on the impervious ground surface adjacent to the trench drain in the vehicle maintenance building (see Appendix C, Photographs 42 and 43). Various chemicals are stored and maintenance activities are performed above and near the trench drain. City staff members were uncertain whether the trench drain discharges to the combined sewer, the MS4, or a holding tank.
- A metal materials waste bin was stored without coverage in an area upgradient of a drain inlet on the northeast side of the vehicle maintenance building (see Appendix C, Photographs 44, 45 and 46). City staff members were uncertain whether the drain discharges to the combined sewer, the MS4, or a holding tank.

The City's map of the Public Works Facility available at the time of the inspection did not display the flow pathway and discharge location for the trench drains located within the buildings at the Public Works Facility. Furthermore, the map did not display all outdoor drain inlets at the facility and their associated flow pathways and discharge locations. Therefore, the ultimate discharge location from these areas was unclear to the EPA Inspection Team.

Sweeper Tailings Disposal Site – West End of Elliot Street, Harrisburg, PA 17104
The City's sweeper tailings disposal site is located to the northwest of the Advanced Wastewater Treatment Facility and is adjacent to an Amtrak railroad right-of-way, about 200 feet northeast of the Susquehanna River. The site is used mostly by the City's Department of Public Works' Bureau of Neighborhood Services for storing sweeper tailings, salt, and various other materials. The City staff explained that the sweeper tailings were stored at this location until being hauled offsite for disposal at a landfill. The City's Director of Public Works stated that he believed some of the sweeper tailings were used to generate compost; however, he was not certain whether the tailings had ever been tested to determine pollutant concentrations. The ground surface of the site was relatively flat, although it appeared that stormwater might drain offsite to the southwest. The EPA Inspection Team observed the following with regard to pollution prevention and good housekeeping at the facility:

- Sweeper tailings were stored on the ground surface without cover or containment, and standing water had accumulated adjacent to the sweeper tailing piles (see Appendix C, Photograph 47). Standing water has the potential to increase stormwater contact with pollutants.
- Salt was stored on the ground surface without cover or containment, and standing water had accumulated adjacent to the salt storage pile (see Appendix C, Photographs 48 and 49). Standing water has the potential to increase stormwater contact with pollutants, particularly during salt loading and unloading operations.
- Trash and debris from the sweeper tailing piles and other sources were observed on the ground surface and in standing water in various areas of the site (see Appendix C, Photographs 50 and 51).

Water Treatment Facility – 100 Pine Drive, Harrisburg, PA 17104
As described above, the City's Water Treatment Facility houses primarily the City's drinking water and distribution operations. The facility was built in 1994 and consists of several buildings and open-air tanks. Stormwater at the facility drains primarily to a detention basin, which discharges to the Asylum Run waterway to the northwest. The EPA Inspection Team observed the following with regard to pollution prevention and good housekeeping at the facility:

- Stains, sediment, and evidence of previous spills were observed on the impervious ground surface adjacent to several floor drains in the maintenance shop building (see Appendix C, Photographs 52, 53 and 54). City staff members was uncertain whether the floor drains discharge to the combined sewer or the MS4, and the schematics available at the time of the inspection did not show the flow pathway or discharge location of the floor drains.
- The chemical loading/unloading area at the facility is located about 40–100 feet from a storm drain inlet which discharges to the detention basin at the facility (see Appendix C, Photograph 55). City staff stated that they did not have specific written procedures for loading/unloading chemical products and wastes.

- A waste container without a cover was located in an upgradient area about 150 feet from a storm drain inlet on the south side of the maintenance shop building (see Appendix C, Photographs 56 and 57). Several holes were observed in the sides of the waste container (see Appendix C, Photograph 58).
- The EPA Inspection Team observed sediment on the impervious ground surface outside the southern garage entrance to the maintenance shop building in an upgradient area about 125 feet from a storm drain inlet (see Appendix C, Photographs 59 and 60).

2.3.2. The City had not conducted vehicle and equipment washing in accordance with the Protocol. The Protocol for the Municipal Operations and Maintenance MCM requires the Permittee to put the following policies and practices into place:

- Create and use designated cleaning areas, preferably indoors where wash wastewater can be recycled or directed to treatment. If indoor washing is not possible, create specific areas to wash cars on gravel, grass, or other permeable surfaces.
- Block off storm drains while washing or use an insert to catch wash water. Make inserts and dams available.
- Pump soapy water from car washes into a sanitary sewer drain. If pumping into a drain is not feasible, pump car wash water onto grass or landscaping to provide filtration.

During the inspection, the EPA Inspection Team observed that the designated street sweeper washing area at the Public Works Facility was located outside adjacent to a drain inlet near the southeast corner of the street maintenance building (see Section 2.3.1, Public Works Facility Site Visit, for additional details). City staff members were not certain of the ultimate discharge location of this drain (i.e., the combined sewer, the MS4, or a holding tank), and the drain inlet was not shown on the City's map of the facility. City staff members stated that they believe the drain discharges to the Terre Kleen unit and subsequently offsite to a natural drainage way southwest; however, the drain inlet is not blocked during washing operations, nor is an insert used in the catch basin.

In addition, the EPA Inspection Team observed an area inside the street maintenance building at the Public Works Facility that was used for vehicle washing (see Section 2.3.1, Public Works Facility Site Visit, for additional details). There was a floor trench drain in this area; however, City staff was uncertain whether the trench drain discharges to the combined sewer, the MS4, or a holding tank. City staff stated that about 15 vehicles had been washed in this location within the two days preceding the inspection.

2.3.3. The City had not compiled information on existing municipal facilities as required by the Protocol. The Protocol for the Municipal Operations and Maintenance MCM states that during Permit Year 1, the City should gather information on existing municipal facilities and the operations (in particular vehicle operations) that take place at the facilities. The EPA Inspection Team formally requested an "Inventory of municipal facilities/corporate yards" (see Appendix B, Exhibit 4, Item No. 26), but the City could not provide the requested records. City staff members explained that they did not have a formal written list of municipal facilities and the operations that take place at those facilities. Therefore, the City provided the EPA Inspection Team with a verbal list and description of the facilities and identified their locations in the City's GIS-based map.

During the inspection, the EPA Inspection Team conducted site visits to the City's Public Works Facility, the Advanced Wastewater Treatment Facility, the Sweeper Tailings Disposal Site, and the Water Treatment Facility (see Section 2.3.1, Municipal Operations and Maintenance Site Visits, for additional details). During site visits at the Public Works Facility and the Water Treatment Facility, the City Staff members were not aware of the discharge location for numerous floor drains within buildings and drain inlets outside buildings (i.e., whether the drains and inlets discharged to the combined sewer, a separate sewer, a waterbody, or another component of the MS4) or the potential or real impact of activities performed at the facilities. The City did not have specific stormwater management plans or operations and maintenance plans for these facilities.

2.3.4. The City had not developed a vehicle operations and maintenance program as required by the Protocol. The Protocol for the Municipal Operations and Maintenance MCM requires that the City develop a vehicle operations and maintenance program during Year 2 of the Permit term, and implement the program in Year 3 and beyond. The EPA Inspection Team formally requested a "Written description of Vehicle Operations and Maintenance Program" (see Appendix B, Exhibit 4, Item No. 31), but the City staff stated a program to meet the requirements of the Protocol does not exist.

2.3.5. The City had not conducted basic awareness training for municipal employees regarding stormwater pollution prevention and management. The Protocol for the Municipal Operations and Maintenance MCM states that to meet this requirement the Permittee must "(1) conduct basic awareness training of your municipal employees regarding stormwater management [stormwater facility operation, maintenance, and inspection; and vehicle maintenance, fueling, and washing], and (2) ensure that your employees understand the new procedures developed in the O&M Program . . . . "

The EPA Inspection Team formally requested "Municipal employee training records and syllabus" (see Appendix B, Exhibit 4, Item No. 30), but the City could not provide the requested records. City staff explained that specific stormwater awareness training had not been conducted for municipal employees and therefore did not have corresponding records. City staff explained that municipal employees receive annual and intermittent safety training sessions; however, stormwater pollution prevention and management has not been included as a component of the safety training.

The EPA Inspection Team interviewed a City field maintenance worker and the Industrial Pretreatment Coordinator during the inspection. They confirmed that they have not received stormwater awareness training.

2.3.6. The City had not conducted routine maintenance inspections or cleaning of catch basins. The Protocol for the Municipal Operations and Maintenance MCM states that beginning in Permit Year 3, the permittee must "*inspect each catch basin at least once annually* to determine if it needs cleaning and note any repair needs [emphasis added]. The Protocol for the Municipal Operations and Maintenance MCM further states "Years 4-5: Continue Implementation of P2 Policies and Practices for the O&M Program."

The EPA Inspection Team formally requested "records of post-construction BMP and catch basin inspection and maintenance (March 10, 2009 to current)" (see Appendix B, Exhibit 4, Item No. 29), but the City could not provide the requested records. The City's Director of Public Works explained that the City does not have a formal schedule for cleaning catch basins; rather, catch basin cleaning is conducted in reaction to identified problems as time and resources allow. The City was able to provide the EPA Inspection Team with only two reports—one report for October 2009 and one mid-monthly report for June 2010, which included limited information on catch basin inspection and maintenance (see Appendix B, Exhibit 7). The October 2009 report indicated that zero storm drain inlets had been repaired, 16 storm drain inlets had been cleaned (out of 3,361 total inlets to the MS4[4]), and zero sections of storm sewer had been cleaned during the month of October 2009. The mid-monthly report for June 2010 indicated that the only maintenance performed on the storm system was the cleaning of one storm drain inlet.

As described in Section 2.1, the City staff do not have an awareness of which inlets are connected to the combined sewer or separate storm sewer systems. As a result, when the City's field maintenance workers perform maintenance activities on catch basins within the City, they cannot be clear whether the work was conducted on a catch basin connected to the MS4 or one connected to the combined sewer system.

Section 2.4 Additional Observations

2.4.1. Staffing Changes and Program Implementation. The City has undergone significant personnel changes in the past year. The City's previous mayor, who had been in office for 28 years, retired at the end of 2009, and there has been approximately a 50 percent turnover in staff since that time. The City's Director of Public Works was appointed approximately four weeks before the inspection; previous to that appointment, the position had been filled with interim directors.

The City's MS4 program had been administered by the previous City Engineer, Mr. Joesph Link, who left his position in October 2009. According to City staff, Mr. Link did not leave standard operating procedures for the implementation of the MS4 program, and since October 2009 the MS4 program has been overseen by several persons.

[4] Information provided by the City Consultant Engineer. This figure was obtained by means of a count of inlets identified in the City's GIS-based MS4 mapping system, and it includes inlets to the separate system that ultimately discharge to the combined sewer system.

2.4.2. Act 167 Plan Update. As stated in the Protocol, "the Pennsylvania Stormwater Management Act ("Act 167"), 32 P.S. §§ 680.1 *et seq.*, already requires counties and municipalities to develop and implement stormwater management programs, on a watershed-by-watershed basis. The county applies to DEP for project approval, and proceeds in developing the watershed plan with the assistance of the municipalities in the watershed." Therefore, the City implemented the Protocol as its SWMP and, through City Bill No. 22-2006, the City adopted the *Spring Creek and Paxton Creek Watershed Act 167 Stormwater Management Plan* as its Stormwater Ordinance. During the inspection, City staff explained that "according to the Dauphin County Conservation District, a *county-wide* [emphasis added] Act 167 Plan was approved on June 28, 2010, and is in the process of being disseminated to all Dauphin County municipalities."

Attachment – 1

In addition, the EPA Inspection Team observed metal parts with oily residue (e.g., engine blocks) and noticed stockpiles of woody material on the ground surface without cover or containment in an upgradient area about 50–75 feet from the edge of Paxton Creek (see Appendix C, Photographs 3 and 4). The City staff members were not certain whether the Consolidated Scrap Resources facility maintained coverage for its scrap metals recycling activity under DEP's General Permit for Discharges of Stormwater Associated with Industrial Activities, PAG-03.

Photograph 3. Outfall Observation Location #1 – Stockpiled materials stored wtihout cover or containment in upgradient area about 50-75 feet from Paxton Creek.

Photograph 4. Outfall Observation Location #1 – Close-up of metal parts and engine blocks shown in Photograph 3.

Appendix A
Inspection Schedule

Agenda for MS4 Program Inspection of City of Harrisburg, PA – July 22–23, 2010		
Day	**Time**	**Team 1**
Thursday, July 22, 2010	8:30 am – 9:00 am	Kick-off Meeting & Program Management Overview
	9:00 am – 12:00 pm	Office Components – Illicit Discharge Detection and Elimination (IDD&E), Post-Construction Stormwater Management, and Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance
	12:00 pm – 1:00 pm	Lunch Break
	1:00 pm – 2:30 pm	Office Components – Illicit Discharge Detection and Elimination (IDD&E) and Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance
	2:30 pm – 4:30 pm	Field Component – IDD&E
Friday, July 23, 2010	8:30 am – 12:00 pm	Field Components – IDD&E and Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance
	12:00 pm – 1:00 pm	Lunch Break
	1:00 pm – 2:30 pm	Field Components – IDD&E, Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance, and Post-Construction Stormwater Management
	2:30 pm – 2:45 pm	Internal Discussion[5]
	2:45 pm – 3:45 pm	Closing Conference[6]

[5] Internal Discussion - Time for inspectors to arrange notes and prepare information to be discussed with the Municipality at the Closing Conference. Municipality participation is not expected.
[6] Closing Conference – Open to applicable Municipal representatives.